Serfojee Rajah 1827

ESSAYS

ON THE

DISEASES OF CHILDREN,

WITH CASES AND DISSECTIONS.

ESSAY I.

OF

CYNANCHE TRACHEALIS,

OR

CROUP.

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DIRECTIONS TO THE BINDER.

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PREFACE.

WHEN Dr. Harris publiſhed his Eſſay on the Acute Diſeaſes of Children, Sydenham ſaid to him, " Without flattery; you are the firſt man I ever envied; and it is my firm belief that your little book will be more uſeful to mankind than all I have written." The book did not in itſelf, perhaps, merit ſo high a commendation; but Sydenham foreſaw that it would turn the attention of phyſicians to a part of their profeſſion the moſt uſeful, and the moſt neglected.

STILL this department is ſtrangely overlooked. Children are not admitted

into public hofpitals, and their difeafes are ill underftood, and fuperficially treated, or flurred over, by thofe who profefs to teach medicine. The beft phyficians do not fcruple to acknowledge, that they find nothing at firft fo difficult as the treatment of thefe difeafes; and it is only by careful obfervation, and after years of practice, that this moft interefting branch of profeffional knowledge is to be attained. Thefe things had made a deep impreffion on my mind when I entered on the charge of an extenfive range of practice, in a place where fome of the moft formidable of the difeafes of children are peculiarly frequent and dangerous. I devoted my chief attention, therefore, to this fubject, and refolved to feek, with unremitting diligence, all occafions of obfervation and of ftudy in a department fo intimately connected with the

duties which I had undertaken. I ſoon found my caſes and obſervations multiply. I have been careful to compare them with the obſervations and caſes of others; and I have arranged them ſyſtematically, with the intention of ſubmitting them to the public, not without hopes of being uſeful to my profeſſion.

My deſign is to diſcuſs, in ſeparate Eſſays, the moſt important of the Diſeaſes of Children, beginning with thoſe, as leſs intricate, to which children, after being weaned, are expoſed, and proceeding afterwards to thoſe which attack infants at the breaſt. My hopes of being uſeful reſt upon the fidelity of my obſervations, and the minuteneſs and accuracy of detail, where I may have been enabled by diſſection to elucidate any important points in the na-

ture and hiſtory of the diſeaſes of which I treat.

In this Eſſay, which I now venture to publiſh, I have attempted the diſcuſſion of one of the moſt intereſting diſeaſes, the moſt alarming in appearance, and in reality one of the moſt dangerous to which a child can be expoſed. Theſe motives might alone have been ſufficient to lead me firſt to the diſcuſſion of the ſubject I have choſen; but in my ſituation I found an additional motive, of great influence. To this diſeaſe children are peculiarly expoſed in the town where I practiſe; and the opportunities which this frequency has afforded me of obſerving it in all its ſtages, and alſo of tracing, after death, the appearances and nature of the diſeaſe, have given me a confidence in what I have to lay before the public,

which I could not otherwise have attained.

With regard to the way of treating the subject, I have been chiefly solicitous to establish such facts as might serve as the sure foundation of safe and effectual practice. It is not unbecoming to say, that my histories are accurate, and that the dissections have been careful. These are points of acknowledged importance, and will free me from any imputation of rashness. In the body of the Essay, however, I have not dwelt much on the morbid appearances, because I am sensible that the Engravings which accompany the cases will explain those appearances more accurately than the most laboured or lucid description.

It is the singular good fortune of this

first Eſſay to have received theſe illuſtrations from a Gentleman well known to the medical world by his excellent anatomical works, who, to a maſterly uſe of his pencil, joins the moſt conſummate knowledge of Morbid Anatomy; and I need ſcarcely add, that it receives its chief value from this exertion of his friendſhip.

ESSAY I.

ON

CYNANCHE TRACHEALIS.

ILLUSTRATED BY ENGRAVINGS.

THIS ESSAY IS INSCRIBED,

AS A TESTIMONY OF RESPECT,

TO

JOHN ROLLO, M.D.

SURGEON-GENERAL TO THE ROYAL ARTILLERY, &c. &c.

BY HIS MOST OBEDIENT SERVANT,

JOHN CHEYNE.

ESSAY I.

ON

CYNANCHE TRACHEALIS.

The diſeaſe which in this country is called Croup, may be defined an inflammatory affection of the Trachea, which in the progreſs of the diſeaſe is accompanied with an effuſion which becomes a tubular membrane, lining the inflamed ſurface.

It might ſeem ſtrange that a diſeaſe ſo ſtriking in the ſymptoms, and ſo ſpeedy and fatal in the event, ſhould not have been clearly deſcribed [1] earlier than the middle of laſt century, were

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[1] The following paſſage (tranſcribed from Ballonius into the *Sepulchretum of Bonetus*, Vol. I. p. 484.) may refer to this diſeaſe: "Ægri quatuor mihi noti, qui eodem fere tempore interiere pene "morbo conſimili: Omnibus medicis negotium dedit: Imo auſim afferrere morbum non intellexiſſe: Difficultas erat ſpirandi ſumma, ſpiritus frequens et parvus ad mortem uſque: In ſicco velut ſpirare videbantur: Nec tuſſis nec ſputum, ſpiritum ne ad momentum cohibere poterant: Erecto paulum corpore ita parvum et frequens ſpirabant: Febris non erat magna, nec quæ iſtam reſpirationem requireret," &c.

it not remembered, that formerly all the ailments of children were much neglected, and that even the most eminent physicians, when called to children, went with reluctance, judging their diseases to form a labyrinth for which they had no clew [2].

Yet the descriptions to be met with in every systematic writer of that dangerous angina, in which no tumour is to be found in the fauces [3],

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" Chirurgus affirmavit se secuisse cadaver pueri ista difficili " spiratione et morbo, ut dixi incognito sublati: Inventa est pi- " tuita lenta contumax, quæ instar membranæ cujusdam arte- " riæ asperæ erat obtenta, ut non esset liber exitus et introitus " spiritui externo, sic suffocatio repentina." *Ballonius, Epid. et* " *Ephemer.* Lib. II. p. 197. and 201. See also Hildanus, Cent. III. Obs. 10. Exemp. 1.

[2] " Quapropter medici non pauci, nominis amplissimi, palam " sunt nobis aliquando professi, se pueris ægrotis, ac præsertim " recens natis visendis advocatos, invita quidem Minerva, tan- " quam ad mysterium nescio quod evolvendum, aut insanabi- " lem affectum sanandum, plumbeis pedibus accedere solitos." *Harris de Morbis Acutis Infantum*, p. 2.

[3] " Etenim angina alia vera, alia notha est: Veræ et legiti- " mæ quatuor sunt differentiæ. Una quam omnium periculo- " sissimam censuit Hippocrates, ubi neque in faucibus, neque " in cervice quicquam apparet." *Fernelii, Universa Medicina de Partium Morbis et Symptomat.* Lib. V. cap. 9.

" Inter anginæ species gravissima est et celerrima, quæ nec " in cervice, nec in faucibus conspicuum, aliquid efficit."— " Porro mortifera atque omnium horrendissima angina citissime " occidit, quæ neque in cervice, neque in faucibus quicquam " conspicui vel tumoris vel ruboris exhibet, simulque summi " doloris tormentum, et vehementem febrem, atque tantum " non præsentem suffocationem infert. Tum profecti oculi ver-

however vague they may be, afford sufficient evidence that the disease [4] was not altogether overlooked.

Martin Ghisi [5], an Italian physician, published the first regular history of Croup; but the best

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" tuntur et rubent et veluti his qui strangulantur prominent. " Vox impedita nihil significat, et qualis catulorum est," &c. *Nicol. Piso de Cognoscend. et Curand. Morbis*, Lib. II. cap. 3.

" Si inflammatio interiores laryngis musculos occupet synan- " che appellatur. In synanche maxima est respirationis læsio, " ita ut ægri strangulari videantur. Fauces vehementer dolent, " nullus tamen rubor aut tumor, neque in faucibus intus neque " extra in cervice apparet. Hæc species anginæ omnium peri- " culosissima est." *Lazari, Riverii Op. Universa Prax. Med.* Lib. VII. cap. 7.

See also the 801. and 802. aphorism of Boerhaave, with Van Swieten's commentary.

[4] Perhaps it may be added, that there is ground for supposing the disease more frequent now than it was formerly. In an inaugural dissertation, defended at Edinburgh in 1780, by Dr. Ambrose Cookson, there is the following communication from his friend Mr. Fell, of the county of Lancaster: " After diligent search, I have found some remarks made on Croup at " its first appearance in this place in 1760. I say its first ap- " pearance, because my father, who was an accurate observer " of diseases, and practised physic here for upwards of forty " years, could not recollect that the disease once occurred to " him; and none of my medical acquaintances had at that time " the least knowledge of it."

" In that spring, six children labouring under the disease " were committed to my care, to all of whom it proved fatal. " Catarrhal complaints were then very frequent; indeed in " most of them the disease commenced with symptoms of ca- " tarrh," &c. p. 8.

[5] Martino Ghisi Lettere Mediche in Cremona, 1749. This

and fulleſt is that of Chriſ. Frider. Michaelis, *De Angina Polypoſa ſive Membranacea*, publiſhed at Gottingen in 1778. The frequency of Croup in Leith and the neighbourhood, furniſhed Dr. Home of Edinburgh with materials for an eſſay on the ſubject in 1765. From poſſeſſing the ſame, or perhaps better opportunities, I have been enabled to compoſe the following hiſtory, which I truſt is a faithful picture of this ſtriking diſeaſe [6].

The Croup [7] is leſs known in the temperate than in the northern regions of Europe. Peculiar to no ſeaſon, it however chiefly appears in the winter and ſpring, in low ſituations [8] expoſ-

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performance I have not been able to procure; I therefore muſt rely on the accuracy of Michaelis.

[6] I do not allow that the diſſertations of Wilcke, De Angina Infantum, (*Sandifort*, *Theſaurus*, Vol. II.) or thoſe of Millar and of Ruſh, relate to this diſeaſe. The diſſection by Dr. Martin in Wilcke's eſſay appears to have induced Michaelis to ſay, in p. 6., that it contains one or two examples of the diſeaſe; but I think even that is far from being a clear caſe of Croup. The acute aſthma of Dr. Millar is evidently a different diſeaſe, and in the Noſology ought to occupy a place in a different claſs. Dr. Ruſh, in his Diſſertation on the Spaſmodic Aſthma of Children, *London* 1770, confounds the two diſeaſes, and does not ſeem to underſtand the true nature of either.

[7] Concerning the etymology of this word, Roſenſtein ſays, "He has not been able to learn any vulgar name for this diſ- "eaſe, except that the Scots call it Croup." I rather think *roup* is the word; it is called Roup in this town; and, like many of our words, it is, I imagine, of French origin, *roupie*.

[8] This diſeaſe, we are informed by Dr. Crawford, prevailed

ed to air paſſing over large bodies of water; and it is moſt eſpecially the diſeaſe of ſea-port towns. It is very prevalent in cold changeable weather, often appearing after a cloudy and hazy day; inſomuch that I have ſeen a mother, into whoſe family the diſorder had been a frequent intruder, kept in conſtant anxiety by this condition of the atmoſphere.

The Croup chiefly prevails in children from a ſhort time after birth [9] until puberty; attaching itſelf to particular families; and generally attacking the moſt robuſt and ruddy children. It does occur, but more rarely, in children exhauſted by ſome other diſeaſe.

The diſeaſe [1] generally comes on in the evening, after the little patient has been much expoſed to the weather during the day, and often after a ſlight catarrh of ſome days ſtanding. At firſt his voice is obſerved to be hoarſe and puling;

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in the Carſe of Gowrie, a plain in Perthſhire, bounded by the river Tay; but he adds, "Hæc planities vero nuper deſiccata "fuit, et rarius occurritur morbus." *Diſquiſitio Med. Inauguralis de Cynanche Stridula*, p. 13.

[9] I have known this diſeaſe in a child three months old, but it does not frequently occur before weaning. It has been obſerved (I believe by Dr. Home), very juſtly, that the younger children are when weaned, they are the more liable to the diſeaſe.

[1] This deſcription is in the main taken from a very perfect caſe which I attended the winter before laſt, and which exhibited the diſeaſe as it will often be ſeen in violent attacks.

he ſhuns his play-fellows, and ſits apart from them, dull, and, as it were, foreſeeing his danger. His illneſs, indeed, does not prevent him from going to ſleep, but ſoon he awakes with a moſt unuſual cough, rough and ſtridulous. And now his breathing is laborious, each inſpiration being accompanied by a harſh ſhrill noiſe, moſt diſtreſſing to the attendants: His face is ſwelled and fluſhed, and his eye bloodſhot; and he ſeems in conſtant danger of ſuffocation: His ſkin burns, and he has much thirſt; he labours more and more in breathing; ſtill the ringing noiſe is heard, and the unuſual cough: He tries to relieve himſelf by ſitting erect; no change of poſture, no effort gives him relief. Generally his ſufferings are thus protracted until morning, when perhaps there is a ſlight remiſſion; his breathing is a little eaſier, but the anxiety, the fever, and the cough remain; he is ſoon as ill again as ever; and theſe ſymptoms continuing, weakened by the violence of his illneſs, with purpled lips and leaden countenance, he dies in two or three days [2]. In other caſes, the diſeaſe, after continuing ſome time, appears ſuddenly alleviated: The breath-

[2] There are very diſtinct hiſtories of the diſeaſe ending fatally in 24 hours: Of this Mr. Alexander ſaw four inſtances. Generally, however, the child does not die before the third or fourth day. Sometimes the diſeaſe continues much longer, for ſeveral weeks.

ing is free, the child ſoon becomes cheerful, his appetite for food returns, he amuſes himſelf, and ſeems perfectly recovered, and the hope of every one is raiſed, only to make the diſappointment more keen; for the child ſuddenly gets worſe, and dies, his livid and ſwoln face and convulſive ſtruggles giving him the appearance of one that is ſtrangled.

When Croup is favourable, it terminates in various ways. Moſt commonly, after the diſeaſe has arrived at its height, the ſequel is as it were a retrogreſſion of the attack; there is poured out a moiſture on the ſkin, the fever declines, and the croupineſs, and, laſtly, the cough, gradually wear away.

When bleeding is uſed upon the commencement of the violent ſymptoms, the relief is often immediate; and I have ſcarcely believed that I ſaw the ſame child breathing ſoftly, who ten minutes before lay gaſping and convulſed.

Sometimes, after the diſeaſe has continued a few days, a viſcid and white ſubſtance is expectorated, and the child is relieved [3]: Sometimes the Croup is chronic, and does not ſubſide for weeks, when the reſolution is very gradual, the child now and then coughing up portions of this white membrane.

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[3] This does not always happen. See caſe 19, where the membrane was twice rejected, completely formed, and yet the child died.

When, in the urgency of the attack, the fauces and neck are examined, with a view to inveſtigate the cauſe of theſe ſymptoms, even when a ſenſe of heat is complained of in the throat, the tonſils are not ſwelled, and but little inflamed. In ſome inſtances there is a fullneſs to be diſcerned in the ſwell of the neck; but the diſeaſe is generally unaccompanied with this ſign.

It may be ſaid of this complaint, in common with Cynanche Tonſillaris, that the firſt attack eſtabliſhes a prediſpoſition to the diſeaſe. I have obſerved, that after the firſt attack, a ſlighter cauſe will produce Croup a ſecond time than is required originally; nay, I believe that external cold and wet, without any ſpecific ſtate of the atmoſphere, will bring on a recurrence of the diſorder [4]. It is a confirmation of this, that children who have had croup, when they are affected with catarrhal complaints, have more or leſs of the croupy cough until they arrive at their 14th or 15th year.

Upon diſſecting the body, the cauſe of theſe alarming ſymptoms becomes ſufficiently obvious. When the child dies after an illneſs of

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[4] Subſequent attacks are ſuppoſed to be leſs violent than the firſt; but I ſhould, from my own experience, be led to believe that there is ſome error in this. Perhaps the immediate ſteps taken in conſequence of the alarm excited by a knowledge of this dangerous complaint, may prevent it from forming. I have ſeen the third attack more violent than any former one.

three, four, or five days, there is found lining the windpipe a white membrane, of confiderable tenacity. It arifes a little under the larynx, and is fometimes prolonged into the divifion of the trachea; and generally a quantity of a white fluid, like matter with which the lungs are filled, is feen gurgling up. The attachment of the membrane is flight, but the inner coat of the windpipe is inflamed. The inflammation, which is ftill perceptible, and which of courfe muft have been more violent before this fluid exuded, I hold to be the immediate caufe of the bad fymptoms in the firft ftage of the difeafe; as the adventitious membrane and puriform fluid [5], the confequence of that inflammation, is in the conclufion of it.

The pathology of Croup is very fimple. When the child dies, the inflammation has terminated by effufion. This effufion is of a lymph, ftrongly refembling purulent matter; which exuding on the inflamed furface of the windpipe, thickens there, forming the membrane. That this is the natural explanation, is proved to my conviction by analogies from other difeafes; for a fimilar membrane is thrown out on other fecret-

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[5] I have added a cafe, where the membrane, obferved on diffection, was not fuch as to impede the refpiration; it was not more than a few detached crufts: But it would feem that the inflammation, the effufion in the lungs, and the general affection, had produced the fame fatal effect.

ing surfaces, as in diseases of the intestines; and it is one of the most common appearances [6] we find in dissections, being the effect of pneumonia, and the cause of adhesions between the lungs and pleura. As an argument, I may state, that I have discovered in a dissection of Croup an effusion [7] surrounding the outside of the trachea, resembling, in quantity and quality, the white of an egg, and which, if it had been exposed to the drying influence of the air in respiration, would probably have assumed the very appearance of the membrane. I have seen this exudation, in all its different degrees of consistence, gurgling up at the epiglottis, puriform, and quite fluid; then at the larynx, possessing more tenacity; and, lastly, lining the lower part of the trachea, firm, and completely membranous. But in all these circumstances the colour was precisely the same. That this membrane is not merely inspissated mucus, I likewise conclude from the dissimilarity of appearance; from the fluid of which it is composed wanting that resiliency which characterises mucus; from the membrane bearing maceration, without having its structure

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[6] *Morgagni de Sed. et Caus. Epist.* 21.

[7] See case 7. In the Pædanehone of Severinus there is a similar appearance observed in the dissection of a boy who died of the epidemical angina, of which he treats: "Pervestigata "larynx, crustacea quadam pituita, facie exteriore contecta, "citra ulceris speciem." *De Abscess. Nat.* p. 538.

deſtroyed; and from their chemical properties being widely different [8]. But indeed it is not natural to explain the appearance in this manner; and certainly it is not neceſſary to reſort to this ſolution of the difficulty, for ſimilar concretions are found in ſituations where there are no mucous glands; and I do not think that mucus will in any circumſtances aſſume this ſtructure; if it did, we ſhould ſee the membrane in thoſe diſeaſes of children where the ſecretion of mucus is profuſe, but where from weakneſs the power of expectoration is loſt.

It is no hard matter to explain the difficulty of breathing in the latter part of this complaint, when the membrane is completely formed; but in the beginning, the tumor and inflammation (although I ſuſpect they are then much more conſiderable than they are afterwards) will hardly be thought to afford a ſufficient explanation of the orthopnœa. I muſt ſuppoſe, therefore, that along with this fullneſs, and perhaps in ſome meaſure occaſioned by its ſtimulus, there is a ſpaſmodic conſtriction of the larynx. This I am the more inclined to believe, becauſe, although in the firſt ſtage I have never ſeen an intermiſſion in the diſeaſe, unleſs in conſequence of bleeding [9], I have obſerved the breathing, which is

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[8] *Vide* Michaelis, p. 60. et ſeq.

[9] Or ſome other antiphlogiſtic remedy.

always laborious, performed at particular times, and for ſeveral minutes together, with incomparably more diſtreſs. The inflammatory affection of the larynx is doubtleſs ſufficient to account for the alteration which takes place in the ſound of the voice and cough.

There is a circumſtance mentioned in the hiſtory of the diſeaſe, which I have not ſeen ſatisfactorily reſolved : I allude to the ſudden extinction of our hopes when they are at the higheſt, conſiſting firſt in a wonderful remiſſion of the diſorder, and ſoon after in a fatal exacerbation. Perhaps this ought to be attributed rather to a mechanical than to a ſpaſmodic affection of the parts. It ſometimes takes place after the expectoration of part of the membrane ; and I ſuppoſe that the connection of the remainder with the trachea may be looſened ; ſo that in taking a full inſpiration, this detached portion acts as a valve, completely ſhutting up the tube, and thus ſuddenly ſuffocating the child.

Michaelis [1] ſuppoſes this diſeaſe to occur as

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[1] " Suſpicor nempe, morbum in adultioribus non rarius " quam in infantibus occurrere ; cum autem adultiores, mate- " riem lymphaticam, primo ſtatim tempore, quo in aſperam " arteriam effunditur, antequam in ſolidum coagulari concre- " mentum poſſit, ore rejiciant, morbum in eis, primis jam ple- " rumque in incunabilis, ſuffocari, et ſub communis affectionis " catarrhalis ſpecie, obſervatorum oculis ſe ſubtrahere.

" Infantum autem plane alia eſt ratio ; iſti enim initio mate- " riem in aſperam arteriam effuſam, mollem adhuc paucamque,

frequently in adults as in children, with this difference, that adults have the power of expectorating the lymphatic exudation before it becomes a ſolid membrane. But if this were the caſe, we ſhould at leaſt hear the croupy cough, and peculiar voice and breathing, for theſe precede the formation of the membrane. Children of all ages up to puberty have died of Croup; and yet a boy of ten, twelve, or fourteen years of age, has, as perfectly as ever he can have it, the power of expectoration. I have heard of no example of this diſeaſe after the fifteenth year; and I have imagined this to depend on that change which happens in the conſtitution at puberty, and perhaps, in a more peculiar manner, on the change which the upper part of the windpipe undergoes. That a very material alteration does take place, is evident from the change in the voice, which now becomes firm and manly. I therefore ſuppoſe, that the greater degree of tone with which the trachea is endowed, enables it to reſiſt thoſe excitements which would have operated on the ſame organ in a lax and leſs per-

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" rejicere negligunt; mox autem illa ita increſcit, ut vires jam " infantis ad eam rejiciendam non ſufficiant. Credo itaque rudimenta, initiumque morbi noſtri, in adultis non minus frequenter, ac in infantibus occurrere; perfectum autem, atque " completum morbum, cujus naturam membrana polypoſa declarat, ob mox expoſitas rationes, in adultiore ætate rariorem " eſſe." P. 177.

fect ſtate. Hence it may be ſeen, that I conſider the debility of the trachea as the prediſpoſing cauſe to Croup.

The obvious exciting cauſe of this diſorder, the inflamed trachea, the throbbing and accelerated pulſe, the great thirſt, burning ſkin, and high-coloured urine, together with the pain in the diſeaſed organ, point out that it legitimately belongs to the order of inflammations; an order of diſeaſes of which the general treatment is peculiarly applicable to the diſeaſe under review.

With a view to the formation of a plan of cure, it is proper to conſider the diſeaſe as conſiſting of two ſtages—the incomplete, or inflammatory; and the complete, or purulent. In the former the membrane is not yet formed; in the latter it is fully formed. It is in the firſt ſtage that every effort for the cure of the diſorder is to be made. In the firſt ſtage, our practice is bold, as it is ſimple; and unleſs the ſummary meaſures taken in the beginning ſucceed, all ſucceſs, let the management afterwards be ever ſo ſkilful, is very problematical.

In the firſt and ſecond days of illneſs, when the ſigns above enumerated * are diſtinctly be-

* To theſe might be added the buffy coat on the coagulum of the blood; but this is not always found. The parched tongue, likewiſe, although very common, and often a moſt excellent index to the inflammatory nature of a diſeaſe, is not pathognomic.

fore us, when we find the croupinefs attended with much pyrexia, it is our duty to let blood freely ; and to do it effectually, it muft be done with the lancet. Venæfection is eafily performed, as, from the nature of the difeafe, the jugular veins are always tumid ; and in a child it is eafier to let blood from thefe than even from the veins of the arm. If, indeed, the child is very young, and worn out by a former illnefs, or of a tender conftitution, it may be proper to apply leeches ; but it will very rarely happen that we cannot ufe the lancet ; and it is of much confequence to take away a large quantity of blood [3] without delay, it being well known, that to do this fuddenly, is of the utmoft importance in inflammatory difeafes.

After bloodletting, I have been accuftomed to order an emetic. I have obferved the beft effects from emetics, whether ufed before or after the bloodletting.

The warm bath is another very unequivocal remedy ; but as it is a popular and fimple application, it is generally ufed, along with an emetic, before the phyfician is called ; and together or feparately, by their antiphlogiftic powers,

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[3] It is not eafy to eftablifh a rule, but I fhould account from three to five ounces a full bleeding in a child under five years of age. I never at one bleeding took more than eight ounces of blood in this difeafe, and in every inftance it will be found a free bleeding.

they in very many inſtances prevent the formation of the diſeaſe.

Briſk purges, when the bowels are inactive, and indeed in moſt attacks, are ſo obviouſly proper, that it is ſufficient merely to mention them.

The ſolution of tartariſed antimony, given every three or four hours, in nauſeating doſes, I have uſed with ſo much advantage, that I have no heſitation in recommending it. The vinegar of ſquills may be uſed for the ſame purpoſe.

The antimonial ſolution may, in combination with laudanum, be adminiſtered as a diaphoretic; but when the febrile ſymptoms run high, I ſhould prefer giving the ſolution by itſelf, ſo as to occaſion a continued nauſea.

I have ſeldom omitted the application of a bliſter to the neck, and I believe it is a valuable addition to the plan of cure, although I cannot affirm this upon my own experience. Bliſtering has proved, however, ſo uſeful in ſimilar diſeaſes, and is ſo ſtrongly recommended in this, that it is well entitled to every attention.

That part of the plan of cure upon which I would chiefly dwell, is bloodletting. If in the inflammatory ſtage it is not, in the firſt inſtance, attended with an abatement of the bad ſymptoms, it muſt be repeated according to the ſtrength of the patient. Should the phyſician diſlike the uſe of the lancet a ſecond time (and indeed in this repetition he will not at all times

have the concurrence of the parents), I recommend the application of a number of leeches to the neck. The many opportunities which I have had of obſerving the advantage decidedly gained by ſuch treatment, have overcome the repugnance I had to the employment of this remedy in the beginning of my practice; and had I no other reaſon for affirming that the acute aſthma of Millar is not ſynonymous with Croup, this alone were ſufficient, that he diſſuades us from bloodletting, and recommends aſſafœtida, muſk, and Mindererus's ſpirit [4].

The ſecond ſtage of the diſeaſe is known by ſome remiſſion in the phlogiſtic appearances, ſuch as a change in the countenance from a florid to a leaden colour; by the pulſe getting ſmaller; and by the difficulty of breathing continuing or increaſing, the child frequently breathing eaſieſt in poſtures which might be thought moſt unfavourable [5] to reſpiration; and by a ſe-

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[4] Theſe medicines, ſays the Doctor, though children loath at firſt, they afterwards, when forced to take, even acquire a reliſh for!

[5] This, as a ſymptom peculiar to the ſecond ſtage, I have frequently obſerved. I find it taken notice of in two inſtances, but without any concluſion having been deduced from it.

"Malgré ſon oppreſſion il avoit toujours mieux aimé avoir "la tête baſſe qu' élévee." *Obſervations ſur une Maladie analogue a l'Angine Polypeuſe ou Croup des Enfans, par M. Mahon Aſſocie Regnicole á Chartres. Hiſtoire de la Société Royale de Médicine*, p. 207.

diment in the urine. From having obſerved in diſſections that the thyroid veins are very turgid, I have been induced, in this ſtage of the diſeaſe, to apply leeches to the neck; I have alſo uſed emetics, to procure, by the agitation which they produce, the expectoration of the membrane, ſhould it occupy, as ſometimes happens, only a ſmall ſpace in the trachea. The bowels are to be kept open by glyſters; and the low regimen obſerved in the firſt ſtage is to be laid aſide; and the ſtrength of the patient ſupported.

It has been propoſed to give children calomel under this diſeaſe, throwing it in quickly, with a view of bringing on ſalivation. I have ordered it in the ſecond ſtage, but I never found it to be of any ſervice. In a chronic ſtate of the diſeaſe [6], I think this medicine promiſes ſucceſs.

"Mitior reſpirationis difficultas, ſi capite paullulum reclinato lecto incumberet, quam ſi ſedentis potius ſedem imitaretur." *Obſervat. a Cl. Baeck ac Salomon. Michaelis*, p. 285.

I apprehend the explanation of this to be, that the trachea, ſtuffed with the membrane, has its capacity increaſed, by being ſtretched out to the full extent, which happens when the head is leaned backward; whereas when the patient ſits erect, which generally is the eaſieſt poſture in difficult breathing, the head falls ſomewhat forward, and the membrane, being doubled together in the trachea, becomes impervious.

I am inclined to rank a preternatural drowſineſs as a pathognomic of the ſecond ſtage; it certainly is often to be obſerved.

[6] A caſe of this kind will be found in the laſt vol. *Medical Annals*.

In the firſt ſtage, the remedies we already poſſeſs are ſo valuable, that I ſhould be unwilling to relinquiſh them, unleſs the ſuperior powers of a ſubſtitute were demonſtrated.

Some phyſicians have propoſed a ſcheme, abſurd, becauſe impracticable, namely, to pull out the adventitious membrane, after having performed the operation of bronchotomy [7]. This operation cannot be done in the uſual way, by making an aperture between two of the rings of the trachea ; a longitudinal ſlit muſt be made, cutting the cartilages directly acroſs. In the firſt inſtance, the bleeding from the thyroid veins is to be encountered, which, to my thinking, would ſuffocate the child. But ſuppoſe this difficulty overcome, and the forceps introduced into a tube not half an inch in diameter, (for ſuch is the trachea at two years of age) the membrane may not, after the inciſion is made, be found to poſſeſs that tenacity which will enable it to bear the pulling out. Such I have found it after death, at the very place where the operation muſt have been done [8] : And if we

[7] This operation was propoſed by Dr. Home ; has abettors in Drs. Crawford and Michaelis ; and, we are informed by Dr. Ruſh, was actually performed in Philadelphia by a gentleman of well known ſkill in phyſic and ſurgery !—without ſucceſs. Dr. Michaelis has many arguments to this point, which leave no impreſſion with me, but that he was a novice in the diſeaſe when he wrote this part of his book.

[8] I have ſeparated the membrane from the trachea down to

loosen the membrane from the trachea, without extracting it, it will meet the first inspiration like a valve, and the child must immediately be suffocated. But farther, Is the child to be cured by extracting the membrane from the trachea? Certainly not; for there are instances where the child has sunk, even after the membrane had, by the use of emetics, been expectorated [9]. Not only the membrane, but the frothy and puriform matter with which the lungs are stuffed, must be removed before he can be saved; for this must be instrumental in the death of the child: I do not indeed believe that any prudent surgeon will be found to perform this operation.

Previous to the detail of a series of cases, I have only to say, that the means of preventing Croup are still more obvious than the plan of cure, and the object is in most instances attainable. I have observed, in the first place, that some families are much more liable to this complaint than others. It is difficult to say whether

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its bifurcation, in a case where this substance extended into tubes whose diameter did not exceed the eighth part of an inch, and then I have endeavoured gently to pull it out, but it broke off short. In this instance, the connection of the membrane with the inner coat of the trachea, at the part where it yielded, was stronger than the cohesion of the membrane itself; and in this child the membrane was stronger than I had seen it in any other dissection.

[9] See case 10.

this arifes from a particular mode of education, or is owing to a peculiarity of conftitution, which children of the fame family often have in common; but I have had the cleareft proofs of this fact, that very often where one child in a family takes the diforder, the other children are fooner or later affected in a fimilar way. I have known more inftances than one where three or four children of the fame father and mother have been attacked by this difeafe; and authors [1] have mentioned the circumftance of two children of one family being ill about the fame time. In the fecond place, I have obferved, that in Leith the danger is greater or lefs, in exact proportion to the nearnefs or diftance from the fea-fhore; and I conclude that the obfervation would hold good elfewhere. Of all the inftances I have feen of the difeafe this year, amounting to ten or eleven, not one of the children lived a ftone-throw from the fea-fhore or harbour. In Edinburgh, which is only a mile and a half diftant from the fea, nay, in the fkirts of Leith the fartheft from the beach, although not a quarter of a mile removed, the difeafe is rare: I therefore warn parents to take the alarm as foon as the diforder appears; and, where practicable, I recommend a change of habitation. This will generally be precaution fufficient, unlefs where the

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[1] *Home and Rofenftein.*

children have already ſuſtained an attack; in which caſe it will be neceſſary, in this uncertain climate, to guard againſt an indiſcriminate expoſure to the air, particularly in damp weather, from December to the middle of ſummer; and to adopt all thoſe precautions with reſpect to regimen, ſo well known, and ſo ſtrongly recommended as preventives in catarrhal complaints.

CASES

OF

CROUP.

THESE cafes will fhow the nature of Croup better than any general hiftory of the difeafe.

The four firft will place in a favourable point of view the advantages of bloodletting, in producing a refolution of the inflammation. The fifth, from Michaelis, fhows a termination of the difeafe by expectoration of the membrane, effected by the ufe of emetics.

I may obferve, that all the children whofe cafes are given from my own practice, except the fecond, were of a fanguine temperament.

CASE I.

October 15.

As I was walking along Bath-ſtreet, a woman called me to viſit a child who was ill of a cold. I found a fair complexioned boy, ſixteen months old, who appeared in perfect health, and I was about to pronounce him ſo, when I heard him cough very croupily. Being aware of the inſidious way in which this diſeaſe ſometimes ſteals on, I ordered an emetic and the warm bath, and that the utmoſt care ſhould be taken of the child, not without hopes that the diſeaſe might thus be prevented from forming.

The next evening the ſame woman came, quite breathleſs, to inform me that the child was at the point of death; and although ſhe wiſhed me to haſten to her houſe, ſhe did not expect we ſhould find him alive. On my way thither, ſhe informed me that the emetic had ſo much relieved the boy, that, thinking him well, ſhe had quite forgotten his danger, and expoſed him to the weather in the morning, which was very raw.

When I arrived, I ſaw the boy ſo much oppreſſed, that truly I ſtood ſome time without the power of aſking a queſtion, or preſence of

mind to recollect what was to be done. He was ſtruggling ſadly from a difficulty of breathing; his inſpiration was peculiarly difficult, and performed with a grating noiſe; his voice was hoarſe; his face was florid, and much ſwelled; the carotid arteries were throbbing violently; and he ſeemed in danger of immediate ſuffocation.

Though doubtful whether it were poſſible to ſave this child, I opened the external jugular vein, and took a ſmall cupful of blood, and ordered the warm bath again to be got ready for him. In the mean time, I viſited a patient in an adjoining ſtreet, and was abſent about ten minutes.

When I returned, I found, to my great joy, the boy breathing eaſily, his face leſs florid, and the fever already abating. The cough was, however, ſtill ringing, and frequent.

After the bloodletting every circumſtance was favourable. Next morning the child was cheerful and eaſy; but ſuch was the ſeverity of the attack, and ſo great the accumulation of blood in his head, that a violent opthalmia, which laſted many days, was the conſequence.

The warm bath and a bliſter were both uſed, and during the night an antimonial preparation;

but the friends of the child were ſatisfied he was already recovering before theſe remedies were prepared; and I have no heſitation in ſaying his recovery is to be attributed to the bloodletting.

The croupy cough continued ſeveral days,

CASE II.

May 16. one o'clock, p. m.

Mr. H——'s ſon, eight years old,—dark eyes and complexion.

He has had ſeveral attacks of this diſeaſe; one very ſevere, exactly three years ago, when he was relieved by bleeding in the neck.

Laſt night at bed-time he was taken ill. His mother gave him an emetic, and, as uſual in ſlight attacks, he was a good deal relieved by the ſickneſs and vomiting. He continued free from all the ſymptoms of the diſeaſe, except the ringing cough, until about half an hour ago, when his breathing became ſo difficult as to excite great alarm.

His breathing is now laborious, and the ſound reſembles the hiſſing of confined air through a narrow opening; it is rather ſlower than natural; he has the vox rauca and the ringing cough in the greateſt perfection; his ſkin is warmer than is natural; his countenance is fluſhed; and his eyes are very heavy; his pulſe is 120; he has had no paſſage from his bowels for two days.

He had been a good deal expoſed to damp hazy weather; and I remember to have remarked, the night before he was ſeized, that I was afraid the weather would produce ſome more

inſtances of this diſeaſe, a child I then attended being about to die of it.

FOUR O'CLOCK.

With this boy Croup always occaſions much apprehenſion; and at my laſt viſit he readily allowed me to bleed him from the arm, whence I took four ounces of blood, and ordered him immediately a doſe of infuſion of ſenna with tincture of jalap. His breathing was not relieved; and about half an hour after the bleeding it was much oppreſſed, but he ſoon became eaſier. The purge has juſt operated, after ſickening him very much.

EVENING.

His pulſe, which in the morning was 120, is now only 100; his breathing is free; he has had a profuſe perſpiration ever ſince the purge operated; and he is again cheerful.

He was ordered a ſpoonful of the following ſolution every four hours: ℞. Sol. Antim. Tart. ʒvi. Aq. Caſſ. ℥i. Aq. ℥iii. ℳ.

MAY 18.

He has been quite well ſince laſt report: His cough is ſtill a little rough: Yeſterday and today he has been running about the room, and amuſing himſelf as uſual.

CASE III.

April 19.

Mr. W——'s daughter, æt. 12.

This girl is exceedingly robuſt and big of her age, of a florid complexion. She has been threatened with this complaint two or three times, and was taken ill yeſterday evening. She had the day before been much expoſed to the weather, which was damp and chilly. Though her cough was very rough, ſhe went out to-day. I ſaw her at ten o'clock at night.

Her reſpiration was performed with the utmoſt difficulty; ſhe breathed ſo high, that I heard her immediately on entering the houſe, although ſhe lay above ſtairs. Her friends, tremblingly alive to the danger of her ſituation, were ſupporting her in bed, for ſhe could not lie down. Her cough reſembled the barking of a lap-dog, very hoarſe and ſharp; ſhe was much fluſhed, and complained of pain, or rather great heat in the windpipe; her tongue was white; the tonſils and uvula were not inflamed nor ſwelled in the ſlighteſt degree; ſhe ſwallowed eaſily; there was perhaps a fullneſs in the throat; her pulſe was about 130, and pretty ſtrong: She had an evacuation from her bowels this afternoon.

I took from five to ſix ounces of blood from the arm, and ſhould have taken more, but ſhe nearly fainted under the operation: She got very ſick in conſequence of it, and vomited; but ſhe could breathe in the recumbent poſture immediately after the bleeding, though her cough was ſtill very frequent.

Obſerving that while the ſickneſs continued, ſhe breathed, comparatively ſpeaking, eaſily, I was willing to keep it up, and gave her an emetic, which emptied her ſtomach, about half an hour after the bleeding. When the ſickneſs went off, I had her put into the warm bath, where ſhe remained about a quarter of an hour. I then gave her, to be taken during the night, a nauſeating ſolution, ſimilar to that ordered in the laſt caſe. A large bliſter was applied to the ſternum.

Soon after I left her laſt night, ſhe fell aſleep, and ſlept ſoftly for two hours. The medicine made her very ſick during the early part of the morning. Since ſhe was in the bath ſhe has conſtantly had a moiſture on her ſkin, which is cooler. The bliſter roſe very well. She had during the night conſiderable thirſt, which ſtill continues. Her breathing is eaſier, but often is interrupted by the cough. Her pulſe is 100, and ſomewhat irregular. The blood is rich and florid, but not ſizy. She has had no paſſage from her bowels.

I was ſomewhat ſurpriſed to be again ſent for in the evening to viſit this girl. Her complaint had returned about four o'clock, and in expectation that it would ſoon abate, I was not ſent for until eleven. Her cough was worſe than ever; it was ringing and inceſſant; the effort it occaſioned reſembled the convulſions of the whooping cough. Her breathing was quicker than laſt night, although not ſo difficult; her pulſe was 110, and pretty full; her tongue foul. I found her ſitting in the warm bath, and there I bled her to eight ounces. Before I could get the arm bound up ſhe fainted. When ſhe recovered, her breathing was manifeſtly eaſier. I continued ſitting by her for half an hour, during which time ſhe was not two minutes free from a convulſive ſhudder, which ſometimes made her even ſtart up in bed. Her pulſe was now, however, under 100, and not very weak. As ſhe was ſtill faint and ſick, I gave her a ſmall tea cupful of weak port wine negus. I ordered the volatile liniment, to rub her neck.

April 21.

When I left her laſt night, her cough became much leſs frequent, and ſhe has not coughed ſince one o'clock in the morning. Her pulſe is 70; and ſhe breathes like a perſon in perfect health. She had a very ſevere fit of convulſive ſhuddering about two hours after the bloodletting. I called in the evening, when ſhe had ra-

ther more feverifhnefs, and fome cough, but it had quite loft the croupy found. She has ftarted much during the day. Her bowels are open, in confequence of ufing the laxative powder, which was not given before this morning.

APRIL 24.

She is quite free from all her complaints.

CASE IV.

" A girl 15 months old, living a mile diſtant
" from the ſea, appeared in the evening to be
" ſomewhat indiſpoſed, her ſkin being a little
" more hot than uſual. Dr. Home, who went
" to ſee her in the morning, found her breath-
" ing laborious, the pulſe hard, and beating one
" hundred and thirty-five times in a minute.
" He ordered five ounces of blood to be drawn
" off immediately: Her voice then grew ſharp,
" and reſembled that of a cock; the breathing
" frequent and deep; her forehead and inſide
" of her hands very hot; both hands and feet
" ſwelled, but without any redneſs. The pulſe
" now being hard, ſhe was bled again, which
" gave her much eaſe. She was made to drink
" and breathe the vapours of warm water mix-
" ed with a little vinegar: This had a good ef-
" fect, and promoted expectoration. The body
" was unbound with the magneſia alba; in the
" evening a bliſter was applied round the neck:
" The third day ſhe was ſomewhat better; but
" the voice the ſame as before, the pulſe hard,
" and the breathing deep. In the evening four
" leeches were applied under the chin, juſt at

" the top of the windpipe; and they having left
" off ſucking, the place was fomented with warm
" water, ſo that the blood continued to ooze out
" for ſome hours. The child was well the next
" morning."

CASE V.

" Infantis unius et dimidii anni, qui nutricis
" adhuc lacte ſpiſſiore jam alebatur, lectulum
" cum mutato loco feneſtræ apposuiſſent, aëri
" liberiorem juſto tranſitum concedenti, die 29
" Novembris habitum alacrem cum triſti muta-
" vit, accedente noctis præcipue tempore, gra-
" viori tuſſi : Nec inſequente die etſi obambu-
" laret melius valuit. Cum febris obſervaretur
" nulla, nil niſi laxans accepit. Inſequente me-
" dia nocte cum aliqua tuſſi, ſpiritus ducendi
" apparuit difficultas, anxia erat et celer reſpira-
" tio, quæ ſuffocationis metum induceret, præ-
" ternaturale clangori ſtridenti juncta. Fortiter
" movebatur pectus, fortiterque pulſabant arte-
" riæ. Per bihorium hæc continuavit ægrotæ
" ratio ; tunc autem turbas iſtas placida exce-
" pit quies. Primi Decembris, tempore matu-
" tino, pulſus plenus erat ac celer, facies rubra,
" inquietudo ſumma ; increverat interea et re-
" ſpirationis difficultas et raucedo. Cum de
" morbo noſtro jam cogitaretur, vena in bra-
" chio ſecta quinque ſanguinis unciæ mitteban-
" tur ; quo facto et pulſus minuebatur vehe-
" mentia et reſpirationis difficultas ; veſicato-
" rium nunc colli anterioris lateri applicabatur,

" nec enemata omittebantur. Attamen ſpei e-
" ventus minus reſpondit ; exacerbabantur enim
" verſus veſperam et pulſus vehementia et ſpi-
" ritus ducendi difficultas, facillimumque jam
" erat ſtridorem iſtum peculiarem diſtinguere
" atque agnoſcere. Diverſa nunc aceti vapores
" ratione, in uſum trahebantur ; nam non ſo-
" lum ſpongia aceto calido immerſa, ori ægrotæ
" admovebatur, ſed vas etiam aceto ebulliente
" repletum, tenuique ſolummodo linteamento
" tectum, lecto apponebatur, et itaque aer quem
" æger ducebat aceto impregnabatur. Nec quid-
" quam hoc remedio, ægrotæ majus afferre vi-
" debatur levamen ; reſpirationis enim inde mi-
" nuebatur difficultas, et placidus plerumque
" mox inſequebatur ſomnus. Infuſum nunc flo-
" rum ſambuci theiforme, copioſumque oxymel
" ſimplex exhibebatur. Veſpertino tempore col-
" lecta urina, a primo jam initio alba apparuit,
" fruſtuliſque mucoſis quam plurimis fundum
" neutiquam petentibus, ſed ei innatantibus,
" commixta. Prima inſequentis diei luce, ali-
" quando melius valuit, et ſponte muci aliquid
" rejecit. Quæ omnia cum ante meridiem bene
" ſe haberent, imminutaque deprehenderetur
" morbi vis, emeticum exhibere muci ſponta-
" nea ejectio juſſit. Repetitis itaque vicibus oxy-
" mel propinabatur ſquilliticum, uſque dum vo-
" mitus cieretur. Accedente vomitu inſignis
" nec muco remixta membranæ albæ, diverſæ

" magnitudinis, in fruſtula diviſæ, a muco ordi-
" nario ob majorem tenacitatem facillime di-
" ſtinguendæ copia excernebatur. Feliciſſimus
" ille prioris emetici ſucceſſus aliud exhibere
" ſuaſit. Nec illud quoque levamine caruit;
" liberabatur enim æger a membranacea mate-
" ria æque ac muco omnium tenaciſſimo. Gra-
" tiſſima nunc in infante apparuit mutatio; pul-
" ſus æque ac reſpiratio naturali ſimilior evaſit,
" et placido ſopitus ſomno per totam jacebat
" veſperam, maximamque inſequentis noctis
" partem, ſine ulla pene febre vel aliis pathe-
" matibus tranſegit. Tertii Decembris diei ini-
" tio bene valuit, nec de alia re niſi de veſica-
" torio queſtus eſt. Nunc laxans propinabatur,
" cujus ope larga educebatur muci copia.

" Abundans nunc quoque ex naribus ſtillare
" cœpit humor. Nec minus inſequente nocte
" bene ſe habuit, etſi tuſſis, nec moleſta tamen,
" per intervalla rediret. Clangor ſpecificus poſt
" primum jam evanuerat vomitum, et raucedo
" in dies minuebatur. Quarto Decembris mane
" aliud exhibitum fuit emeticum, quod vero
" paullulum modo muci ejiciebat. Quinto jam
" cibum appetere, et priſtinam recuperare ala-
" critatem cœpit. Laxantia, quorum adhuc
" continuabatur uſus, magnam ſemper muci
" quantitatem evacuarunt."

I SHALL now proceed to detail five Cafes which terminated fatally. The four firft occurred in my own practice, the fifth is taken from Michaelis.

In the firft and fourth the membrane was moft completely formed, but there was leaft inflammation. In the fecond, the membrane, of which perhaps part had been expectorated, was lefs complete, but the inflammation was greater. In the third the inflammation was very great, but the membrane was lefs perfect than in any of the other cafes. In the fourth cafe a confiderable quantity of calomel was given, without producing any good effect. The fifth cafe ended fatally after the expectoration of the membrane, the boy dying hectic.

CASE VI.

On the 22d of February, in the ſame houſe where I ſaw the firſt caſe, I found a ſecond in a child of a ſimilar temperament. The character of the diſeaſe, however, was quite different. The inſpiration was very difficult, but not hoarſe; the cough was ſtridulous; the child was pale rather than fluſhed. When his mother took him on her knee, he ſtruggled for breath, and ſeemed to be eaſieſt when lying on his back, with his head low. His eye was heavy; he was afraid to cry; but was extremely fretful and irritated when I laid hold of his arm, inſomuch that it was long before I got his pulſe numbered. In the five ſeconds it beat 14 ſtrokes, and was weak. His hands were chilly; he had great thirſt, and ſwallowed eaſily: He had eaten nothing for two days: He had no fullneſs in the upper part of his neck, and it was not in my power to examine the fauces: He had three ſtools this morning; and his urine, which has much ſediment, he voids frequently.

Ten days ago he took a diarrhœa, attended with griping, which his mother imagined proceeded from dentition. This diſorder continued till Wedneſday the 17th, when it entirely left him, and the croupy cough came on that after-

noon ; but the mother was not at all alarmed before the 20th, when his breathing had become very high ; ſtill ſhe thought his illneſs proceeded from his teeth. This morning he was cheerful and eaſy ; but the reſpite was granted only for a ſhort time ; his diſeaſe became much more threatening, and her fears were ſeriouſly awakened.

Of her own accord ſhe had applied a bliſter two days ago, and ſhe gave the boy a vomit this morning, which brought away much viſcid expectoration and bile. I ordered an emetic and two leeches to be applied to the neck.

FEBRUARY 23.

I called early this morning, and found that the child had died an hour before. The leeches were not applied.

DISSECTION.

There did now appear a fullneſs in the neck ; but this was not an occaſional fullneſs, but rather a thickneſs and natural ſhortneſs of the neck. The face, and ſkin of the neck, were peculiarly pale, like marble ; the cellular membrane and fat were white, and moſt delicately tranſparent, and free from a ſtain of blood ; the thyroid veins on the anterior part of the trachea were turgid, as were the external and internal jugulars.

The inciſion was made from the chin to the ſternum, and the tongue, trachea, and gullet,

were cut out, and pulled from the cavity of the thorax. There was no inflammation of the fauces, nor any apparent affection of the throat; but upon looking into the glottis, a fluid like pus was obferved working up from the trachea. The œfophagus was cut away, and the trachea flit up upon the back part, where there is a deficiency of the cartilaginous rings, and then the membrane prefented itfelf fully formed.

The trachea was cut away near its branching off; and here, upon careful examination, the membrane was found moft complete, and very ftrong; but gradually, as it ftretched upwards behind the thyroid cartilages, it degenerated into a puriform matter, which loofely adhered to the rima glottidis and facculus laryngeus. This matter was not like the natural fecretion of the mucus of thefe parts; it was not the mucus thickened and become tough; much of it was fluid as the natural mucus is, but it had no other refemblance to it; it was like that matter which at firft flowed out of the larynx; it was of the confiftence of cream, or rather the fluid part of it was thin and watery like whey; and in this the firmer matter, curdy, and like the difcharge from a fcrophulous joint, floated.

Upon taking up the membrane from the lower part of the trachea, where it was firm, the inner coat was feen inflamed, the veffels red, enlarged, and diftinct.

EXPLANATION

OF

PLATE I.

The Membrane ſhown by cutting up the Cartilages of the Throat on the back part.

A, The EPIGLOTTIS.

B B, The CRICOID CARTILAGE cut and torn open.

C, The TRACHEA.

D D, The CORNUA of the THYROID CARTILAGE.

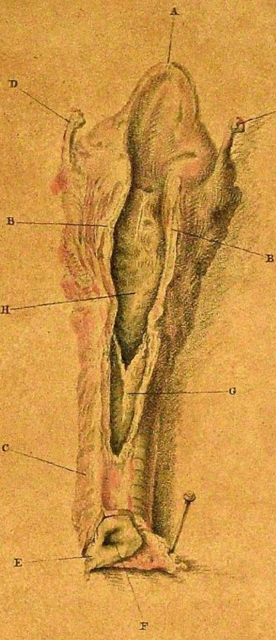
E, The ADVENTITIOUS MEMBRANE.

F, The CAVITY of the MEMBRANOUS TUBE.

G, The MEMBRANE where it is weaker, torn in ſeparating the back part of the Trachea from it.

H, The MEMBRANE more irregular and liquid, where it is attached to the larger Cartilages.

Plate, 1.



Charles Bell delt. John Stewart sculpt.

CASE VII.

March 20.

G. D——'s daughter, two years and a half old.

She is extremely ftifled in her breathing, which is rather frequent; the expiration is performed as if the tube were fhut up by a valve, and this forced back with a flap when the air returns from the lungs. There is no tumor in the fauces, no rednefs; her cough is very croupy and frequent; her neck is not fwelled; her countenance is of a death-like palenefs, and her extremities chilly; her pulfe is very quick, but ftill firm and regular. She had a ftool this evening.

This child fome days ago, her friends fay four or five, took the croupy cough, and for two days her breathing has been affected; but as fhe had fome appetite for food, and drank eafily, they apprehended nothing. The child was vifited fome hours ago for the firft time. She feemed fuffocating, and five ounces of blood were taken from her neck. Before the comprefs could be applied to the orifice, fhe nearly fainted; fhe then vomited very freely, and derived temporary eafe in her breathing from the bleeding; but foon after the dyfpnœa returned. The warm

bath was ordered, and a bliſter, which was immediately applied to the neck.

In addition to this, when I ſaw the child, I recommended an emetic, from a notion that the membrane of croup was formed.

MARCH 21.

I ſaw the child at eight o'clock this morning; ſhe was writhing and twiſting about, of an aſhy paleneſs, and was juſt dying. The vomit brought away a quantity of mucus, but notwithſtanding my injunctions, it was not kept. The firſt mouthful, which ſeemed like the white of an egg, ſhe rejected with great violence. I think there is reaſon to ſuppoſe it might contain in it part of the membrane. The urine paſſed ſince laſt viſit had a moſt copious ſediment. The child died at nine o'clock.

DISSECTION.

Upon making the firſt inciſion in the neck, the fat and cellular ſubſtance reſembled very much, in whiteneſs and tranſparency, that of the laſt patient. The thyroid veins were not peculiarly diſtended, but the internal jugulars were very turgid. The thyroid gland was large, and the lobes of the thymus gland extended upwards to the thyroid cartilage, in two diſtinct ſlips.

Although there appeared no active inflammation, yet the effect of an increaſed action was

very manifeſt, from the quantity of a gelatinous effuſion which ſurrounded the lobes of the thyroid gland, and paſſed behind them round the trachea.

Upon lifting the ſternum, the thymus, of a monſtrous ſize, lay extended over the pericardium. The lobes of the lungs, which projected, were of a pale greyiſh colour [3]. Upon raiſing them from the thorax, the poſterior part was of a darker red, not, however, as if inflamed, but as if more gorged by the gravitation of the blood in the ſupine poſture of the body after death [3].

Having taken out the trachea and part of the lungs, the trachea was opened upon the back part at the bifurcation; but here there was no membrane. The trachea was then ſlit upwards, and on approaching the back part of the great cartilages of the larynx, the membrane was found diſtinct, fully formed, but not ſo ſtrong as in the laſt inſtance. It was of leſs extent, as

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[3] [3] I ſuſpect this appearance had led to an error in the firſt caſe deſcribed by Michaelis; for he ſays, "Pulmonum dextro "æque ac ſiniſtro in latere, facies inferior ac poſterior colore "inſignis erat livido, unde ad inflammationem harum partium "concludere fas eſt. Facies autem pulmonum anterior ac ſu-"perior, naturali gaudebat colore." P. 256.—And again, in the *Obſervations par M. Mahon*, "La portion des lobes du pou-"mon qui, s'eſt préſentée la première à la vue, lorſqu'on a en-"levé le ſternum, etoit dans ſon état naturel.—Il n'en a pas "été de même du reſte du poumon. Il etoit rouge et en-"gorgé," &c.

well as poſſeſſing a leſs degree of firmneſs. A ſtreak of the membrane paſſed down a conſiderable way, attached to the fore part of the trachea. In general, it has been obſerved, that the membrane extended farther down, and was firmer on the back and membranous part of the trachea.

The membrane, which extended about an inch and a half downwards from the glottis, was in a manner floating in a milky-like fluid, white and opaque.

Upon tracing the branches of the bronchiæ, there was no membrane; but in cutting into the ſubſtance of the lungs, a frothy mucus was obſerved in the minute branches of the bronchiæ.

Plate, 2.

Charles Bell delt.

John Stewart sculpt.

EXPLANATION

OF

PLATE II.

The Trachea slit up on the back part from the Epiglottis to its division into the Lungs.

1. The EPIGLOTTIS.
2. The cut edges of the CARTILAGES.
3. The MEMBRANE adhering to the back part of the THYROID CARTILAGE.
4. The MEMBRANE gathered together, so as to plug up the TRACHEA.
5. A streak of the MEMBRANE continued into the right branch of the WINDPIPE.
6. The LEFT BRANCH of the WINDPIPE, the internal coat being very slightly inflamed.
7. The SUBSTANCE of the LUNGS cut into.

CASE VIII.

May 14.

M. D——'s daughter, 18 months old, was the day before yeſterday ſeized with a croupy cough. Yeſterday, with the cough, ſhe began to have much difficulty of breathing, which towards noon increaſed to a great height; and this ſymptom has not once intermitted ſince. Yeſterday and this morning ſhe had her uſual appetite for food. At preſent ſhe labours inexpreſſibly in her breathing; her noſtrils are inflated; and every inſpiration raiſes her cheſt from the bed. If ſhe is at all fretted, in crying her voice is very ſtridulous, and then ſhe takes the ringing cough. Her face is of a leaden paleneſs, her eyes are languid, and ſhe is very lethargic. When ſhe is lifted up, ſhe ſtruggles and toſſes about till ſhe again gets to lie down on her back, and then when her head is low, ſhe appears eaſier, and is inclined to doſe. She has vomited ſeveral times this afternoon. Her pulſe is rather full and quick, and her ſkin warm; her bowels have been looſe; her fauces are without ſwelling or redneſs; and there is no ſwelling in the neck.

The treatment in this caſe was ſimilar to that already mentioned, only that I uſed no internal

medicines but an emetic and calomel. The child died in nine or ten hours after I firſt ſaw her.

DISSECTION.

During this diſſection I was much annoyed by the jealous watchfulneſs of the attendants, ſo that the operation was hurried.

On the fore part of the neck there was nothing particular to be obſerved; there was neither ſwelling nor any appearance of inflammation; but upon making an inciſion, ſeparating the larynx from the pharynx and root of the tongue, and then folding down the trachea and œſophagus, a viſcid tenacious froth was ſeen to fill the upper part of the pharynx and opening of the windpipe.

Upon cutting out and carefully examining the trachea in its whole length, the inner coat was obſerved to be conſiderably inflamed. The epiglottis was inflamed, and ſomewhat tumid. The ſwelling of the epiglottis was not conſiderable, but it was red, and its veſſels were diſtinct and turgid; and upon its concave ſurface films of a membranous cruſt adhered: When theſe were removed, ſlight ulcerations were obſerved on each ſide of the little ligament which runs down the middle of it. The membrane covering the cornua of the os hyoides and the thyroid cartilage was ſwelled and red, and had that purpliſh

or bluiſh caſt, with lake-coloured turgid veſſels, which would incline me to ſay that the inflammation was of an erythematous kind.

Within the cartilages of the larynx the membrane was diſtinctly formed, but irregular, perhaps diſplaced in ſome meaſure in the hurry of diſſection. There was little inflammation lower in the trachea; and there was none of the membranous pellicles or cruſts to be obſerved lower down than the crecoid cartilage; but the internal membrane had the veſſels diſtinct, and ſlightly turgid.

I was not allowed to open the breaſt.

EXPLANATION

OF

PLATE III.

In this Plate the parts are preſented to us as ſeen from behind, the Cartilages and membranous part of the Trachea being ſlit up. The appearance of the whole, however, differs eſſentially from that of Plate. I. Here the membrane formed by the diſeaſe is leſs perfect, being more in ſhreds and detached pieces, whilſt the upper part of the Trachea is conſiderably tumified and inflamed. This Plate is indeed intended to ſhow the parts in their inflamed ſtate.

Plate 8.

[illegible] delt. [illegible] sculpt.

CASE IX.

SUNDAY, JUNE 7.

A. R——'s daughter.

She has had catarrhal complaints ſince Sunday laſt, with a rough cough. On Thurſday her breathing became affected in the manner it is at preſent, namely, frequent and laborious. During the night there is an aggravation of the dyſpnœa. Her cough and her voice are croupy; her eye is heavy; her pulſe is moderate in ſtrength, and not much quicker than uſual; ſhe has no thirſt; her appetite for food is natural; ſhe is generally reſerved, but ſometimes amuſes herſelf as if nothing were the matter; and is at no time fretful. The tonſils and velum are ſlightly inflamed; the ſubmaxillary glands are full, but not painful. Her expectoration is copious; her urine is high coloured, depoſiting much ſediment. The diſeaſe is well marked, but it has been leſs active in the attack than uſual.

EVENING.

In the morning I ordered a vomit, which brought away a great deal of mucus; and ſhe had afterwards leeches, and then a bliſter applied to her throat. After the vomit had ope-

rated, ſhe had a grain of calomel, which has been repeated every two hours ſince. This medicine has procured her ſeveral ſtools. I think her breathing is more difficult now than it was in the morning, and indeed ſhe has more pyrexia. I ordered the warm bath, and a continuation of the calomel every hour and half during the night.

MONDAY EVENING.

She has had 10 grains of calomel, but without any abatement of the diſeaſe. This morning ſhe got another vomit, which cauſed the expectoration of much mucus, mixed with puriform flakes, reſembling portions of the membrane. I ordered another vomit for this evening, and a continuation of the calomel.

TUESDAY.

The emetic had a powerful effect, bringing up a conſiderable quantity of pulmonary ſecretion. The child, however, died this morning.

She had taken 12 grains of calomel.

DISSECTION

Inſtead of examining the trachea by diſſecting it from the neck and cutting it up upon the back part, it was determined to open it on the fore part, and to trace the diſeaſed appearance through its whole length, and to follow its branches in the lungs.

When the integuments of the neck were diſ-

fected back, though there did not any where appear marks of inflammation, there was a turgidity of the great veins, as is represented in the annexed drawing. This, however, was evidently occasioned by the difficult respiration affecting the circulation of the heart, the impeded action of the heart causing a remora in the cavas and right sinus.

Accordingly, upon opening the thorax, we found the right auricle and the superior cava turgid with blood, as if the irritability of the heart and general system had been gradually exhausted by the laborious forcing respiration through the tube of the windpipe, which was progressively diminishing in capacity.

When the trachea was slit up on the fore part, from the thyroid cartilage to the division in the lungs, the membrane appeared completely formed in all this length, and of a firmer body than in any of the cases which have been given. It was more delicate behind the great cartilages of the throat, was firmest about the middle of the neck, and again became more soft and liquid after the division of the trachea in the lungs; and gradually as I traced the bronchiæ, it lost its consistency. Although I observed a slight affection of the membrane of the bronchiæ, the adventitious membrane could be traced but a very little way into the lungs.

The lungs were diſtended with air in ſuch a manner as if the air had eſcaped from the cells into the cellular membrane of the lungs. This I conceive to be the effect of the violent play of the lungs, and which muſt have obſtructed the natural functions.

EXPLANATION

OF

PLATE IV.

To the annexed Engraving of this Caſe no letters of reference are required. The Integuments are lifted from the fore part of the Neck and part of the Sternum. The Veins of the Neck and the Right Auricle are ſeen very turgid with blood. The Trachea being ſlit up on the fore part, gives an impreſſive example of the danger of the diſeaſe.

Plate 4.

Charles Bell del.t John Stewart sculp.t

CASE X.

" Puer novem annorum, habitus corporis tenuis delicatuli, adfectionibus catarrhalibus sæpe obnoxius, ceteroquin ſanus, tempore vernali anni 1775 febricula cum levi tuſſi et tonſillarum tumore correptus eſt. Hunc morbum ab aere frigido veſpertino, in quo obambulaverat puer, ortum duxiſſe ratus, potum theiformem calidum, pulvereſque camphoratos et linctum pectoralem præſcripſi. Satis bene inde ſe habuit ægrotus, febris diſparuit, tuſſis metuit, tumor faucium fere evanuit. Cum vero nulla adeſſet expectoratio, hanc ut promoverem, oxymel ſquilliticum addidi linctui pectorali. Verum in eodem ſtatu per benas ſeptimanas remanſit tuſſis, ita tamen ut ægrotus genio puerili late indulgeret, cibos appeteret, nocturna quieta frueretur.

" Neque febris ſub eo tempore recruduit, neque reſpirationis difficultas, aliudve incommodum ſupervenit. Quindecimo autem die accerſitus res inveni quam maxime mutatas. Quippe puer moribundi inſtar facie pallida, oculis labiiſque diductis immobilibus, cute frigido ſudore perfuſa, anhelitu difficillimo, ſtridulo, lento, reſpirabat. Pulſus parvus erat

" et celerrimus. Verbo quovis momento mi-
" ſellum animam efflaturam eſſe putabant ad-
" ſtantes. Unde vix obtinui a parentibus ut ve-
" nam ſecari ſinerent. Quatuor ſanguinis un-
" ciis abſque levamine eductis, periculo magis
" magiſque increſcente, emeticum præſcripſi ;
" tartari nempe ſtibiati aliquot grana in aqua
" ſimplice ſoluta, refracta doſi porrigenda, do-
" nec inverteretur ſtomachus. Secundus reme-
" dii hauſtus, vomitum excitavit tuſſimque. Quo-
" rum unita vi, non ſine ſummo ſuffocationis
" periculo ex faucibus protruſum foraſque de-
" mum rejectum eſt concrementum membra-
" naceum, firmum, ramoſum, totoque tractu
" cavum, arteriæ aſperæ bronchiorumque con-
" formationem ſatis apte referens. Poſt ſingu-
" larem hanc excretionem, pauculas ſanguinis
" guttas ſecum vehentem, ceſſarunt omnia, quæ
" infanti mortem minata erant ſymptomata, ſpi-
" ritum liberrime traxit puer, calorem natura-
" lem ciborum adpetitum, mentis hilaritatem
" recuperavit, lætuſque cum parentibus lætis,
" ceu a morte ad vitam revocatus prandium ce-
" pit. Neque tamen reſtitutum ſivi relinquere
" linctus camphoraceorumque uſum ; ſuaſi eti-
" am vaporis lenientis inhalationem. At breves
" atque deceptrices fuerunt illæ induciæ. Quip-
" pe tertio a dicta mutatione die reſpiratio de-
" nuo fit anheloſa, ſtridula, gallinæ gracillantis
" ſono ſimilis ; pulſu tamen non adeo depreſſo

"et languido, quam in priori mali acceſſu. "Hinc venam iterum ſecui, ſed abſque ſenſibili "levamine. Circa veſperam, aucto ſuffocatio-"nis periculo, tincturam ipecacuanhæ aceto ſcil-"litico miſtam ad excitandum vomitum propi-"navi, et quidem cum ſucceſſu. Alterum enim "concrementum priori plane ſimile ejecit æger "moxque ſublata eſt ſpirandi difficultas.

"Remanebat autem febris lenta, verſus veſ-"peram exacerbans, ſputum hactenus mucoſum "mutatum eſt in purulentum, acceſſet dyſpha-"gia, nec obſtitit corticis Peruviani et aqua-"rum ſelteranarum lacti additarum uſus, quo "minus ſudores et diarrhœa ſupervenirent, vi-"reſque ægroti penitus exhaurirent. Sic deci-"mo tertio poſt alteram rejectionem die ani-"mam efflavit. Valde deſideranti non conceſ-"ſum eſt cadaver ſecare, tracheæque cavum in-"ſpicere."

EXPLANATION

OF

PLATE V.

The Caſe which this Engraving illuſtrates was kindly communicated to me by Dr. Rollo, Surgeon-General of the Artillery, after the foregoing ſheets were printed off. It was a ſingular caſe, as occurring in an adult. He was a gunner, and had, previous to the attack of Croup, of which he died, ſuffered ſeverely from a catarrh. For the drawing I am indebted to my ingenious friend Dr. Macculloch. It is one of the beſt repreſentations I have ſeen of the Membrane taken out from the Trachea.

EXTRACT FROM THE NOTE OF THE DISSECTION.

The Thoracic and Abdominal Viſcera, *in ſitu*, appeared natural; there was rather more fluid in the Cavity of the Cheſt than uſual, and of a browniſh colour; the poſterior and inferior portions of both Lobes of the Lungs had evident marks of inflammation, but more particularly the latter; the fluid found in the Cavity of the Thorax coagulated when expoſed to heat; the

Plate, V.

the portions of the Membrane which were in the branches of the Trachea

[illegible] Sculp.

Tonſils were enlarged, more particularly the left; and both Tonſils were covered with a thick membrane of coagulable lymph. About three inches of the Trachea from the Larynx was taken off; it was covered with the ſame kind of membrane, and had the ſame appearance as in caſes of Croup. Upon a farther examination of the remaining portion of the Trachea, we found a continuation of this membrane, but of a firmer texture than that in the ſuperior part, accompanied with an appearance of inflammation of the natural membrane of the Trachea and its diviſions; and this membrane, as well as the inflammation, pervaded the ſmalleſt ramifications of the Bronchiæ, which upon preſſure were found plugged up with a bloody frothy kind of matter. Upon opening the Heart, polypi and coagulable lymph were found in the right Auricle and Ventricle.

APPENDIX.

In Newhaven, on the 30th of May laſt, I ſaw a boy of twelve years of age, whoſe breathing was very difficult; it was attended with a ſenſe of conſtriction at the larynx; the inſpiration was frequent and croaking, and his voice was rough and harſh: His breathing was ſo alarmingly difficult, that, according to the cuſtom of the common people, all the women living in the neighbourhood were aſſembled to witneſs his death, which was hourly expected. His pulſe was quick, but not ſtrong; and he was much fluſhed. Since the attack commenced, he once or twice, unexpectedly, became eaſy, and continued ſo for a quarter or half an hour, and then the ſymptoms again returned in all their violence. In theſe paroxyſms he had many belchings, but I could not learn whether they relieved him.

His illneſs came on early this morning; and it was imagined to have ariſen from his having gone off in an open boat yeſterday, which was a very cold day, to fiſh.

I ordered him an emetic immediately, which ſenſibly relieved him. He was bliſtered, and he

continued getting better under the uſe of a ſtrong ſolution of aſſafœtida.

This I conceived to be a caſe of the acute aſthma of Millar, and under this impreſſion I treated it ſucceſsfully as a ſpaſmodic diſeaſe. I have never ſeen another inſtance of the diſorder; but from its ſuppoſed identity with croup, I ſhall ſhortly point out the diſtinctive ſymptoms.

In croup, the cough, which I have ſo often noticed, is conſtantly ringing in our ears; in acute aſthma there is little or no cough. In croup there is very ſeldom any remiſſion; the remiſſion in acute aſthma is one of the moſt ſtriking phenomena of the diſeaſe; and it is attended with ſome evacuation, as belching, vomiting, or purging. In croup the pulſe is ſtrong, the urine is high coloured, the fever is much greater, the voice is ſharp and ſmall; in acute aſthma, the pulſe, though perhaps equally quick, is leſs full, the urine is limpid, and the voice is croaking and deep.

By attending to theſe ſymptoms, we ſhall be able to determine the queſtion of bleeding, which is ſafety in the one inſtance, and ſuppoſed to be improper in the other. When there is ſufficient time deliberately to conſider the progreſs of croup, it is hardly poſſible that it ſhould be miſtaken for any other diſeaſe.

Speedily will be publiſhed,

ESSAY II.

This Eſſay will comprehend thoſe diſeaſes of the Inteſtines to which Children are more peculiarly liable. The morbid appearances, hitherto much neglected, have been carefully inveſtigated, and in the Engravings which will accompany this Number, the moſt intereſting of thoſe appearances will be repreſented.

Edinburgh, November 1801.